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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,410	03/01/2004	Cheng-Kuang Sun	JCLA12158	2573
7590 J.C. Patents, Inc. Suite 250 4 Venture Irvine, CA 92618			EXAMINER HENN, TIMOTHY J	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 06/01/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/791,410	SUN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Timothy J. Henn	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent; published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 5, 7 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hashimoto (US 2003/0124773).

#### **[claim 1]**

Regarding claim 1, Hashimoto discloses a camera module comprising: a lens (Figure 6; Figure 1, Item 54); a holder portion having a lower portion, the holder holding the lens (Figure 6; Figure 1, Item 44); a circuit board (Figure 6; Figure 1, Item 70); and an image sensing and processing unit including an image sensing device (Figure 6, Item 10) and an optional signal processing device (Figure 6, Item 110) stacked on and electrically connected to the image sensing device, the image sensing and processing unit being packaged on one side of the circuit board (Figure 6); wherein the holder is fixed on the circuit board and the image sensing and processing unit is inside the lower portion of the holder (Figure 6).

#### **[claim 2]**

Regarding claim 2, Hashimoto discloses a glass layer directly covering the image sensing device (Figure 6; Figure 1, Item 32; Paragraph 0063).

**[claim 5]**

Regarding claim 5, Hashimoto discloses an image sensing device which is a CMOS image sensing device (Paragraph 0059).

**[claim 7]**

Regarding claim 7, Hashimoto discloses a signal processing device and image sensing device which are electrically connected together by wire bonding (Paragraph 0077).

**[claim 17]**

Regarding claim 17, Hashimoto discloses an image sensing and processing unit comprising: a signal processing device (Figure 6, Item 110); an image sensing device stacked on and electrically connected to the signal processing device (Figure 6, Item 10) and a circuit board electrically connected to at least one of the signal processing device and image processing device (Figure 6; Figure 1, Item 70).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3, 6, 8-10, 14-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 2003/0124773).

**[claim 3]**

Regarding claim 3, Hashimoto discloses a circuit board but does not specify a flexible circuit board as claimed. Official Notice is taken that the use of flexible printed circuit boards to mount camera modules is well known in the art to allow the camera module to be more versatile. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a flexible printed circuit board in the camera module of Hashimoto to allow the circuit board to bend to allow for fitting of the camera module in tighter spaces than might be possible if a rigid circuit board was used.

**[claim 6]**

Regarding claim 6, Hashimoto discloses an image processing device for use in a digital camera (Paragraphs 0078-0079), but does not specify that the image processing device is a digital signal processing (DSP) chip. Official Notice is taken that the use of DSP chips in digital cameras is well known in the art to efficiently process images captured by an image pickup device. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a DSP chip as claimed as the signal processing device to efficiently process the images captured by the digital camera of Hashimoto.

**[claim 8]**

Regarding claim 8, Hashimoto discloses camera module comprising a lens (Figure 6; Figure 1, Item 54); a holder portion having a lower portion, the holder holding the lens (Figure 6; Figure 1, Item 44); an image sensing and processing unit including an image sensing device (Figure 6, Item 10) and an optional signal processing device (Figure 6, Item 110) stacked on and electrically connected to the image sensing device; a plate holding the image sensing and processing unit and covering the bottom of the holder, the image sensing and processing unit being inside the lower portion of the holder (Figure 6) and a circuit board electrically connected to the image sensing and processing unit (Figure 6; Figure 1, Item 70). However, while Hashimoto discloses a circuit board but does not specify a flexible circuit board as claimed. Official Notice is taken that the use of flexible printed circuit boards to mount camera modules is well known in the art to allow the camera module to be more versatile. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a flexible printed circuit board in the camera module of Hashimoto to allow the circuit board to bend to allow for fitting of the camera module in tighter spaces than might be possible if a rigid circuit board was used.

**[claim 9]**

Regarding claim 9, Hashimoto discloses a glass layer directly covering the image sensing device (Figure 6; Figure 1, Item 32; Paragraph 0063).

**[claim 10]**

Regarding claim 10, Hashimoto discloses a circuit board which is electrically connected to the signal processing device (Figure 6).

**[claim 14]**

Regarding claim 14, Hashimoto discloses an image sensing device which is a CMOS image sensing device (Paragraph 0059).

**[claim 15]**

Regarding claim 15, Hashimoto discloses an image processing device for use in a digital camera (Paragraphs 0078-0079), but does not specify that the image processing device is a digital signal processing (DSP) chip. Official Notice is taken that the use of DSP chips in digital cameras is well known in the art to efficiently process images captured by an image pickup device. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a DSP chip as claimed as the signal processing device to efficiently process the images captured by the digital camera of Hashimoto.

**[claim 16]**

Regarding claim 16, Hashimoto discloses a signal processing device and image sensing device which are electrically connected together by wire bonding (Paragraph 0077).

**[claim 18]**

Regarding claim 18, Hashimoto discloses an image sensing device disposed on a circuit board (Figure 6), but does not specify a flexible circuit board as claimed. Official Notice is taken that the use of flexible printed circuit boards to mount camera

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modules in well known in the art to allow the camera module to be more versatile.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a flexible printed circuit board in the camera module of Hashimoto to allow the circuit board to bend to allow for fitting of the camera module in tighter spaces than might be possible if a rigid circuit board was used.

**[claim 19]**

Regarding claim 19, see claim 18.

**[claim 20]**

Regarding claim 20, Hashimoto discloses a circuit board which includes one circuit board (Figure 6, see also the rejection of claim 18 above).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 2003/0124773) in view of Segawa et al. (US 2002/0057468).

**[claim 4]**

Regarding claim 4, Hashimoto does not disclose a hard plate disposed on the other side of the flexible circuit board corresponding to the image sensing and processing unit. Segawa discloses a camera module similar to that of Hashimoto and further discloses that additional components such as processing, chip components and connectors or "hard plates" can be placed on the opposite side of the circuit board (Figure 1; Paragraphs 0028-0029). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the opposite side of the circuit board disclosed by Hashimoto for mounting additional processing, chip



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components and connectors or "hard plates" as claimed to make more efficient use of the circuit board space.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 2003/0124773) in view of Glenn et al. (US 6,266,197).

**[claim 13]**

Regarding claim 13, Hashimoto discloses a plate holding the image sensing and processing unit which is a ceramic plate (Figure 1, Item 42; Figure 6; Paragraph 0067), but does not disclose the use of a plastic plate as claimed. Glenn discloses a similar camera module (Figure 1) and further discloses that a plate used for mounting the image sensor can be a ceramic plate, or alternately a plastic plate (c. 9, ll. 48-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a plastic plate in place of the ceramic plate of Hashimoto since a plastic plate is an art recognized equivalent.

***Allowable Subject Matter***

7. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**[claims 11 and 12]**

Regarding claims 11 and 12, the prior art does not teach or fairly suggest a camera module as claimed wherein a first flexible circuit board is electrically connected

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to the signal processing device and a second flexible circuit board is connected to the image sensing device. While the use of flexible circuit boards for connecting image processing and image sensing devices is known in the art, the use of a first and second flexible circuit board as claimed is not taught or suggested.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i.	Shinomiya	US 7,046,296
ii.	Chan et al.	US 2004/0109080
iii.	Wang	US 2004/0212726
iv.	Nakajoh	US 2003/0025825
v.	Gustavsson et al.	US 2004/0189862
vi.	Cheng et al.	US 2005/0117051
vii.	Kuno et al.	US 7,009,654
viii.	Hanada et al.	US 7,005,310

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 11-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJH  
5/11/2007



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